

REMARKS/ARGUMENTS

Claims 1-17 and new Claims 18-25 remain active in the case. Reconsideration is respectfully requested.

Claim Amendments

Claims 18 and 19 have been amended in order to clarify the meaning of the claims. Entry of the amendments into the record is respectfully requested. New Claim 23 is directed to the elected species of polymer

Claim Rejection, 35 U.S.C. § 112

Claims 1-17 have been amended in order to place the claims in more proper U.S. claim format and to make minor corrections in terminology. New Claims 18-22, 24 and 25 are directed to subject matter deleted from Claims 5, 9, 10, 11, 12, 13 and 15. Entry of the amendments and new claims is respectfully requested.

Restriction Requirement

Restriction has been required in the form of an election of a species of polymer that contains water-soluble units and LCST units under 35 USC 121. In reply thereto, applicants hereby elect a polymer that is formed of acrylic acid units as water-soluble monomer units and N-vinylcaprolactam as LCST units. The election is made with traverse.

New Claim 23 is directed to the elected species of polymer. All of the claims read-on Claim 23 except for Claims 5 and 7.

Applicants traverse the election of species requirement on the basis that the Examiner has not shown the elected species of polymer to be separately patentable over other polymers having water soluble units. Moreover, in making the election of a polymer, applicants do so

as a starting point for the Examiner to conduct a search of relevant prior art. In conducting the search, applicants request that the Examiner expand the search for relevant prior art to other species of polymer upon a demonstration that the elected species is, in fact, neither anticipated nor obvious over the prior art that has been found.

Invention

The present invention is directed to a polymer that is water soluble and is comprised of water soluble units and units having a temperature of the LCST type. The polymer of the invention comprises water-soluble units and LCST units. The polymer is prepared by reaction between reactive sites, first of the water-soluble units that bear, before reaction, at least two reactive sites, and secondly of the LCST units that bear, before reaction, at least one reactive site, thereby forming covalent bonds between the units. The LCST units consist of N-vinylcaprolactam homopolymers or of copolymers derived therefrom. The proportion by weight of the LCST units in the polymer ranges from 5 % to 70 %.

Prior Art Rejection, 35 USC 102

Claims 1-4 and 6-17 stand rejected based on 35 USC 102(b), as anticipated by Torgerson et al U.S. Patent 5,730,966. This ground of rejection is respectfully traversed.

The Torgerson et al patent is clearly relevant to the present invention because it discloses a water or alcohol dispersible elastomeric copolymer that is useful in cosmetic applications including those which contact the skin. The copolymer of the reference, of course, has a flexible backbone and has two or more polymeric pendant side chains. The copolymer is prepared by randomly copolymerizing monomers which provide repeating units A and B as shown in column 3 of the patent. Important features of the copolymer are discussed in columns 4 and 5 of the patent. One important feature is that the copolymer

consists of two distinct phases of which one is the hydrophilic side chains of the copolymer which are rigid and said to be closely associated with each other thereby existing in one of the two phases of the copolymer while the backbone of the copolymer is not water soluble and constitutes the other separate phase of the copolymer. Because of the internal immiscibility of the phases, the copolymers exhibit two distinct glass transition temperatures, wherein the backbone of the copolymer should have a Tg of less than about 0° C, preferably from about -10° C to about -130° C, while the hydrophilic side chains of the copolymer have a Tg greater than about 20° C, preferably about 25°C to about 200° C. The hydrophilic side chains of the copolymer are of the polyalkyleneglycol type.

Although the patent, in column 10, mentions that a comonomer can be vinylcaprolactam, the copolymers of Torgerson et al are different from the copolymer of the invention in two important features. The first is that with respect to the selection of monomer for units A of the polymer, the units are preferably not water soluble. This clearly is evident from column 8 of the patent which discloses types of A monomers and specifically mentions at the bottom of the column that water insoluble monomers such as (meth)acrylate esters are employed. On the other hand, the water or alcohol solubility or dispersability of the copolymers of the reference is directly attributable to the hydrophilic side chains from monomer B. In the present copolymer, to the contrary, water solubility accrues from water solubility of the backbone. (In the case of the elected species of the application, acrylic acid units accounts for this solubility.) Stated another way, the reference never defines the copolymer backbone as hydrophilic or water soluble, but does state that the side chains are hydrophilic. In view of the lack of any explicit language in the reference as to the water solubility of the copolymer backbone, it is clear that patentees do not consider the backbone to be hydrophilic. Even if the backbone does contain some water soluble monomers, the

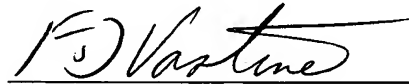
backbone is not water soluble. Rather, water solubility is attributed to the hydrophilic side chains.

The second important feature is that, as stated above, the backbone of the copolymer of the reference must have a Tg of below 0° C. On the other hand, the polyacrylic acid of the examples of the present text has a Tg well above 0°C. Accordingly, it is believed that the reference not only does not anticipate the invention as claimed, but also does not obviate the invention. Withdrawal of the rejection is respectfully requested.

It is now believed that the present application is in condition for allowance. Early notice to this effect is respectfully requested.

Respectfully submitted,

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